4.9 Noise

This section analyzes the potential noise and vibration impacts that would result from the proposed project. The analysis describes the existing noise environment in the vicinity of the project site and estimates future noise and vibration levels at surrounding sensitive land uses resulting from construction and operation of the proposed project, identifies the potential for significant impacts, and provides mitigation measures to address significant impacts. Furthermore, this section evaluates the potential cumulative noise and vibration impacts resulting from the proposed project with related projects and other future growth. The findings in this section are based in part on the One San Pedro Specific Plan Noise and Vibration Study Report prepared by A/E Tech in 2023, which is included in Appendix G.

4.9.1 Environmental Setting

a. Noise and Vibration Basics

Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as undesirable (i.e., loud, unexpected, or annoying) sound. Acoustics is defined as the physics of sound and addresses its propagation and control (California Department of Transportation [Caltrans] 2013). In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement and reflects the way people perceive changes in sound amplitude. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of feeling pain. Pressure waves traveling through air exert a force registered by the human ear as sound (Caltrans 2013).

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but, rather, a broad band of frequencies varying in levels of magnitude. When all of the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum (Caltrans 2013).

The typical human ear is not equally sensitive to the frequency range from 20 to 20,000 Hz. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements (Caltrans

2013). Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in Figure 4.9-1.

Figure 4.9-1 Decibel Scale and Common Noise Sources

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**70**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**60**	
		Large business office
Quiet urban daytime	**50**	Dishwasher in next room
Quiet urban nighttime	**40**	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: Caltrans 2013

These successive additions of sound to the community noise environment change the community noise level from moment to moment, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time (Caltrans 2013):

- L_{eq}: The equivalent sound level over a specified period of time, typically, 1 hour. The L_{eq} may also be referred to as the average sound level.
- L_{max}: The maximum, instantaneous noise level experienced during a given period of time.
- L_{min}: The minimum, instantaneous noise level experienced during a given period of time.
- L_x: The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.
- L_{dn}: The average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dBA to measured noise levels between the hours of 10:00 p.m. to 7:00 a.m. the next day to account for nighttime noise sensitivity.

- CNEL: The Community Noise Equivalent Level (CNEL) is the time average A-weighted noise level during a 24-hour day that includes an addition of 5 dBA to measured noise levels between the hours of 7:00 p.m. to 10:00 p.m. and an addition of 10 dBA to noise levels between the hours of 10:00 p.m. to 7:00 a.m. the next day to account for noise sensitivity in the evening and nighttime, respectively.

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance);
- Interference effects (e.g., communication, sleep, and learning interference);
- Physiological effects (e.g., startled response); and
- Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep.

The World Health Organization's Guidelines for Community Noise details the adverse health effects of high noise levels, which include hearing impairment, speech intelligibility, sleep disturbance, physiological functions (e.g., hypertension and cardiovascular effects), mental illness, performance of cognitive tasks, social and behavioral effects (e.g., feelings of helplessness, aggressive behavior), and annoyance (World Health Organization 1999).

The responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur (Caltrans 2013):

- Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived;
- Outside of the laboratory, a change of 3 dBA in ambient noise levels is considered to be a barely perceivable difference;
- A change of 5 dBA in ambient noise levels is considered to be a readily perceivable difference; and

- A change of 10 dBA in ambient noise levels is subjectively heard as doubling of the perceived loudness.

These relationships between change in noise level and human hearing response occur in part because of the logarithmic nature of sound and the dB scale. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but, rather, logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3-dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and 10 sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source (Caltrans 2013).

Noise Attenuation

When noise propagates over a distance, the noise level reduces, or attenuates, with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner) or idling vehicle (e.g., bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically "soft" sites. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance) (Caltrans 2013). For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source.

Roadways and highways consist of several localized noise sources on a defined path and, hence, are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading." Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans 2013). Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Structures (e.g., buildings and solid walls) and natural topography (e.g., hills and berms) that obstruct the line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the "shadow" of the obstruction, such as behind a sound wall. This type of sound attenuation is known as "barrier insertion loss." If a receptor is located behind the wall but still has a view of the source (i.e., the line-of-sight is not fully blocked), barrier insertion loss would still occur but to a lesser extent. Additionally, a receptor located on the same side of the wall as a noise source may experience an increase in the perceived noise level as the wall can reflect noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and

receiver) to an upper range of 20 dBA with a larger barrier. Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA (Caltrans 2013).

Receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances. Other factors, such as air temperature, humidity, and turbulence can, under the right conditions, also have substantial effects on noise levels (Caltrans 2013).

Vibration Fundamentals

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Since energy is lost during its transfer from one particle to another, vibration becomes less perceptible with increasing distance from the source.

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment Manual, groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard (FTA 2018). In contrast to airborne noise, groundborne vibration is not a common environmental problem, as it is unusual for vibration from sources, such as rubber-tired buses and trucks, to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, heavy trucks traveling on rough roads, and certain construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment (FTA 2018). Groundborne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance from the source of the vibration.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec) and is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to express RMS vibration velocity amplitude. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity; FTA uses a crest factor of 4. The decibel notation VdB acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include buildings where vibration would interfere with operations within the building or cause damage (especially older masonry structures), locations where people sleep, and locations with vibration sensitive equipment (FTA 2018).

Groundborne noise specifically refers to the rumbling noise emanating from the motion of building room surfaces due to the vibration of floors and walls; it is perceptible only inside buildings. The relationship between groundborne vibration and groundborne noise depends on the frequency of the vibration and the acoustical absorption characteristics of the receiving room. For typical buildings, groundborne vibration that causes low frequency noise (i.e., the vibration spectrum peak is less than 30 Hz) results in a groundborne noise level that is approximately 50 decibels lower than the velocity level. For groundborne vibration that causes mid-frequency noise (i.e., the vibration spectrum peak is between 30 and 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower

than the velocity level. Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level at low frequencies (FTA 2018).

b. Existing Noise and Vibration Setting

The project site is in an urbanized area with existing noise and vibration sources, including vehicular traffic on adjacent roadways, commercial activities, construction noise from developing properties in the area, industrial uses associated with the Port of Los Angeles and Port of Long Beach, and other miscellaneous noise sources associated with typical urban environments. The existing noise and vibration setting is described further below.

Noise Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Sensitive receptors are defined as places where noise could interfere with regular activities such as sleeping, talking, and recreating, which include hospitals, residences, convalescent homes, schools, libraries, churches, and other religious institutions. Noise sensitive receptors near the OSP Specific Plan Site include several multi-family residences located to the north, west, and south, and Port of Los Angeles High School approximately 300 feet to the south. Noise receptors near the 327 Harbor Site include multi-family residences located approximately 230 feet to the west along Palos Verdes Street and multi-family residences located approximately 180 feet southwest of the 327 Harbor Site along North Beacon Street. In addition, multifamily residences are currently under construction approximately 60 feet west of the 327 Harbor Site, on the parcel across Beacon Street.

Ambient Noise Levels

To characterize ambient noise levels in the project vicinity, 11 short-term (15-minute) noise level measurements (ST) were conducted on July 19, 2022. The noise measurement locations are shown in Figure 4.9-2. Table 4.9-1 summarizes the results of the short-term noise monitoring conducted in the project area. Two measurements were taken at each location in accordance with industry practice to determine if there is variability between measurement periods. To provide for a conservative analysis of project impacts, the lower L_{eq} of the two noise measurement periods was chosen as the estimated existing noise level at the modeled location. As shown by the measurement data in Table 4.9-1, existing ambient noise levels in the project area are similar to background noise levels in a typical urban environment. In general, traffic on Harbor Boulevard dictates the noise environment at locations within one city block from this arterial roadway, including at the 327 Harbor Site and other residential and commercial uses along the roadway. Measured existing L_{eq} at these locations range between 60 to 66 dBA.

At project site locations farther west from Harbor Boulevard, existing noise sources include sparse local traffic movements, human activities such as lawn mowing, occasional distant aircraft overflights, barking dogs, and chirping birds. The average daytime sound levels (L_{eq}) at these locations are generally in the range of 51 to 59 dBA.

Existing Groundborne Vibration

There are no existing substantial sources of vibration in the project vicinity. For on-road trucks, Caltrans has studied the effects of propagation of vehicle vibration on sensitive land uses and found that the highest traffic-generated vibration is along freeways and state routes (Caltrans 2020). Their study found that vibration measured on freeway shoulders (5 meters from the centerline of the nearest

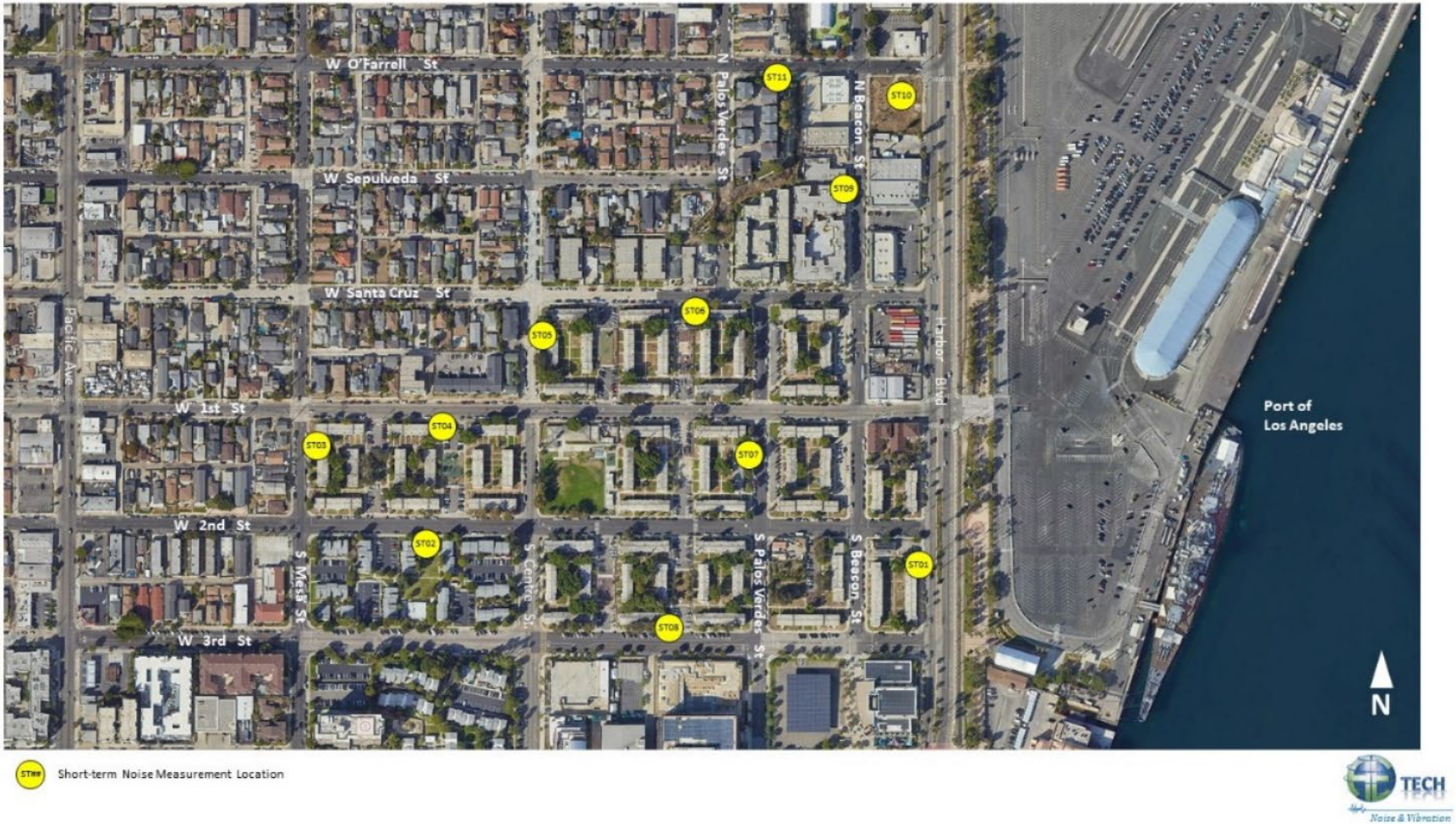
lane) have never exceeded 0.08 inches per second, with the worst combinations of heavy trucks and poor roadway conditions (while such trucks were moving at freeway speeds).

Table 4.9-1 Existing Ambient Noise Levels at the Project Site

#	Measurement Location	Distance to Noise Source	Land Use	Measured Sound Level (dBA)		
				L_{eq}	L_{min}	L_{max}
ST-01	Harbor Boulevard, 60 feet south its intersection with 2nd Street	Approximately 45 feet to the centerline of Harbor Boulevard	Residential	65.8	52.8	75.5
				66.3	52.1	75.5
ST-02	3rd Street, 300 feet east of its intersection with Mesa Street	Approximately 25 feet to the centerline of 2nd Street.	Residential	51.6	41.1	73.3
				54.1	42.8	74.9
ST-03	Mesa Street, 75 feet south of its intersection with 1st Street	Approximately 25 feet to the centerline of Mesa Street	Residential	54.6	42.0	72.8
				56.7	42.2	78.0
ST-04	1st Street, 360 feet east of its intersection with Mesa Street	Approximately 35 feet to the centerline of 1st Street	Residential	57.6	46.4	73.7
				55.8	45.6	70.5
ST-05	Centre Street, 95 feet south of its intersection with Santa Cruz Street	Approximately 20 feet to the centerline of Centre Street	Residential	55.5	45.1	74.7
				56.3	44.8	80.7
ST-06	Santa Cruz Street, 160 feet west of its intersection with Palos Verdes Street	Approximately 25 feet to the centerline of Santa Cruz Street	Residential	51.1	43.8	66.9
				54.7	44.0	73.0
ST-07	Palos Verdes Street, 95 feet south of its intersection with 1st Street	Approximately 25 feet to the centerline of Palos Verdes Street	Residential	66.5	44.0	87.2
				56.1	45.2	76.3
ST-08	3rd Street, 225 feet west of its intersection with Palos Verdes Street	Approximately 40 feet to the centerline of 3rd Street	Residential	59.3	47.2	77.2
				59.4	47.7	84.5
ST-09	Beacon Street, 150 feet north of its intersection with Santa Cruz Street	Approximately 30 feet from the centerline of Beacon Street	Residential	61.6	51.3	82.3
				56.6	50.5	76.0
ST-10	327 Harbor Boulevard	Approximately 150 feet to the intersection of Harbor Boulevard and O'Farrell Street	Vacant lot	62.5	51.0	73.8
				61.1	50.0	76.0
ST-11	O'Farrell Street, 145 feet west of its intersection with Palos Verdes Street	Approximately 25 feet to the centerline of O'Farrell Street	Residential	57.9	52.2	69.2
				67.7	52.5	90.2

L_{eq} = equivalent sound level; L_{min} = minimum, instantaneous noise level; L_{max} = maximum, instantaneous noise level

Figure 4.9-2 Ambient Noise Measurement Locations



Existing Traffic Noise Levels

Existing traffic noise levels were assessed at eight locations throughout the project site area using noise model traffic inputs developed from a combination of traffic data provided by the project traffic consultant, traffic count data obtained from the Los Angeles Department of Transportation (LADOT), and on-site traffic counts. The selected noise analysis locations are summarized in Table 4.9-2 and shown as locations M01 through M08 in Figure 4.9-3. The traffic noise analysis locations were determined based on traffic data availability and represent typical residential locations along roadways in the project study area. Quantification of existing traffic noise levels is completed in terms of the highest hourly traffic noise levels (i.e., AM and PM peak hour L_{eq}) and CNEL. The traffic data for the roadways used in the noise model for assessment of existing traffic noise levels are presented in Appendix G.

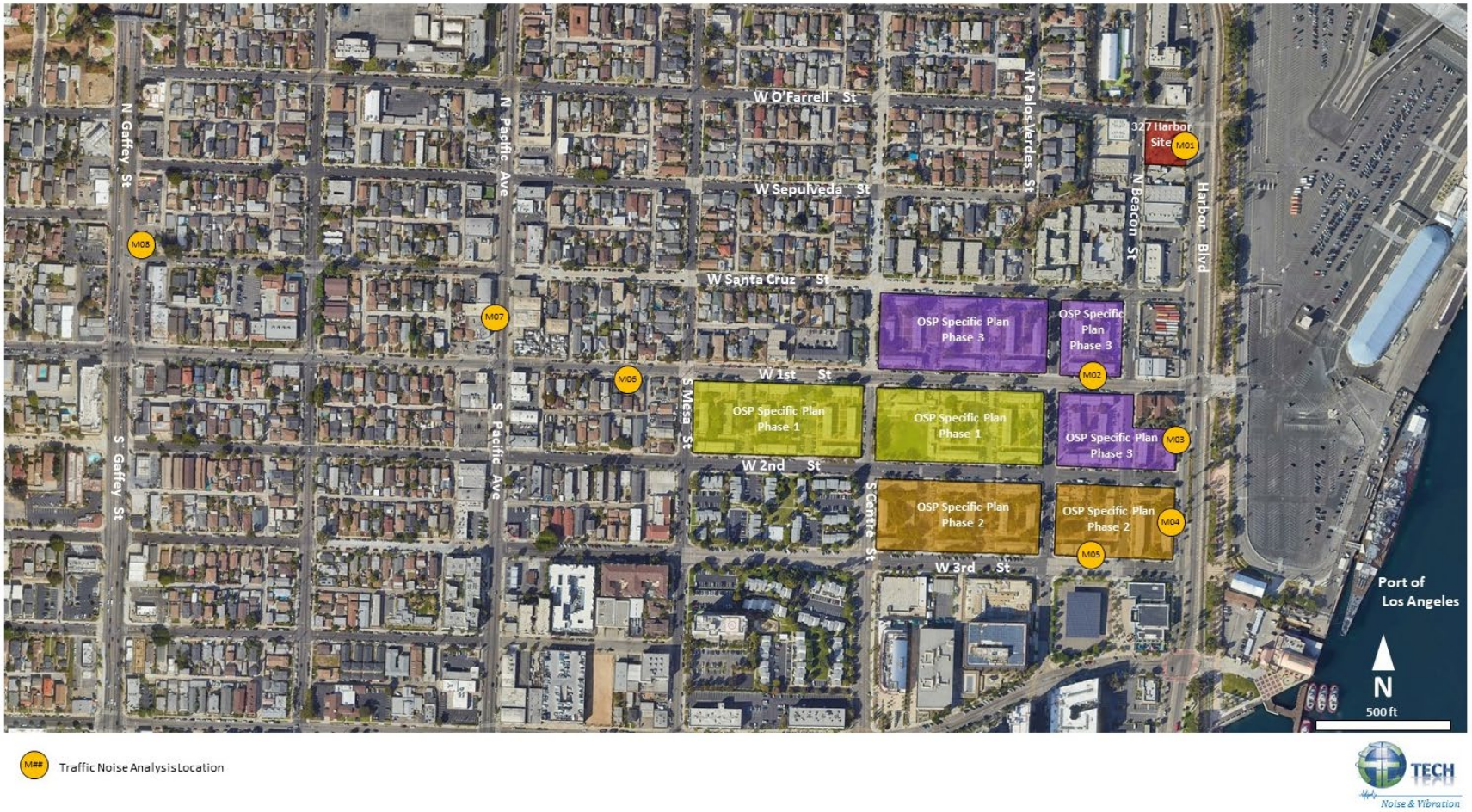
Existing CNEL values at the exterior of representative traffic noise receptors were also estimated using the results of the traffic noise model developed for the project area. As shown in Table 4.9-2, the existing CNEL values at the modeled receptor locations in the vicinity of the project site range between 59 dBA and 72 dBA. Existing exterior CNEL values at the locations along Harbor Boulevard are in the City's "conditionally acceptable" range (up to 70 dBA CNEL), while traffic noise levels at other locations along local access streets are in the "normally acceptable" range (see Figure 4.9-4 for the City's land use compatibility for community noise).

Table 4.9-2 Existing Traffic Noise Levels

		Existing Noise Level, dBA		
#	Roadway Segment	AM Peak Hour L_{eq}	PM Peak Hour L_{eq}	CNEL
M01	Harbor Boulevard, south of O'Farrell Street	68	69	70
M02	1st Street, West of Harbor Boulevard	58	58	59
M03	Harbor Boulevard, between 1st Street and 2nd Street	68	68	69
M04	Harbor Boulevard, between 2nd Street and 3rd Street	68	68	69
M05	3rd Street, west of Harbor Boulevard	61	59	60
M06	1st Street, east of Pacific Avenue	62	61	62
M07	Pacific Avenue, between Santa Cruz Street and 1st Street	67	68	68
M08	Gaffey Street, between Sepulveda Boulevard and 1st Street	73	71	72

Leq = equivalent sound level; CNEL = community noise equivalent level
Notes: See Appendix G for traffic noise data.
Source: A/E Tech LLC 2023

Figure 4.9-3 Ambient Traffic Noise Measurement Locations



4.9.2 Regulatory Setting

a. Federal Laws and Regulations

Noise Control Act of 1972

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (U.S. EPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, U.S. EPA issued guidance levels for the protection of public health and welfare in residential areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA (U.S. EPA 1974). These guidance levels are not standards or regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project. Moreover, the federal noise standards are not reflective of urban environments that range by land use, density, proximity to commercial or industrial centers, etc. As such, for purposes of determining acceptable sound levels to determine and evaluate intrusive noise sources and increases, this document utilizes the City of Los Angeles Noise Regulations, discussed below.

Federal Transit Administration Vibration Standards

There are no federal vibration standards or regulations adopted by any agency that are applicable to evaluating vibration impacts from land use development projects such as the proposed project. However, the FTA has adopted vibration criteria for use in evaluating vibration impacts from construction activities (FTA 2018). The vibration damage criteria adopted by the FTA are shown in Table 4.9-3.

Table 4.9-3 Construction Vibration Damage Criteria

Building Category	PPV (in./sec.)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

PPV = peak particle velocity; in./sec. = inches per second

Source: FTA 2018

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from groundborne noise on the following three off-site land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional (FTA 2018). The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3

refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but that still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land-use categories are shown in Table 4.9-4. No thresholds have been adopted or recommended for commercial or office uses.

Table 4.9-4 Groundborne Vibration and Groundborne Noise Impact Criteria for General Assessment

Land Use Category	Frequent Events[1] (VdB)	Occasional Events[2] (VdB)	Infrequent Events[3] (VdB)
Category 1: Buildings where vibration would interfere with interior operations.[4]	65	65	65
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime use.	75	78	83

VdB= vibration velocity

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[2] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[3] "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.

[4] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

Source: FTA 2018

Occupational Safety and Health Act of 1970

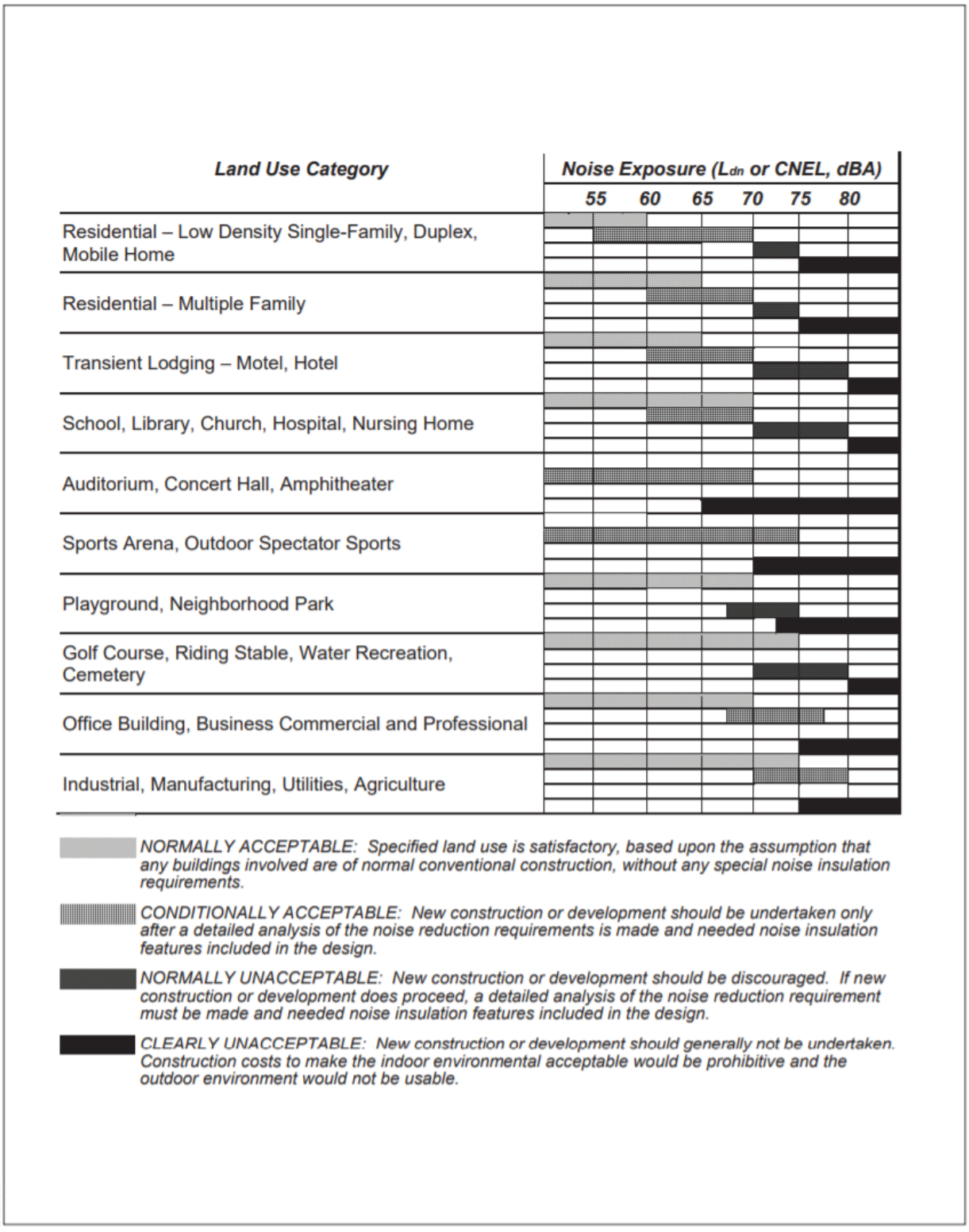
Under the Occupational Safety and Health Act of 1970 (29 United States Code [USC] Sections1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation (United States Department of Labor 1970).

b. State Laws and Regulations

Office of Planning and Research Guidelines for Noise Compatible Land Use

The State of California has not adopted Statewide standards for environmental noise but the Governor's Office of Planning and Research (OPR) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as presented in Figure 4.9-4 (OPR 2017). The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines.

Figure 4.9-4 Guidelines for Noise Compatible Land Use



Source: OPR 2017

California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must identify and appraise noise problems in the community and analyze and quantify current and projected noise levels.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels. These requirements are collectively known as the California Noise Insulation Standards (Title 24 of the California Code of Regulations [CCR]). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. The standards require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

The State of California's noise insulation standards for nonresidential uses are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards (CALGreen) Code. The CALGreen Code noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed Projects may use either the prescriptive method (CALGreen Code Section 5.507.4.1) or the performance method (CALGreen Code Section 5.507.4.2) to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA $L_{eq(1hr)}$.

c. Regional and Local Laws and Regulations

Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan

In Los Angeles County the Regional Planning Commission has the responsibility for acting as the Airport Land Use Commission (ALUC) and for coordinating the airport planning of public agencies within the county. The ALUC coordinates planning for the areas surrounding public use airports. The Comprehensive Land Use Plan provides for the orderly expansion of Los Angeles County's public use airports and the area surrounding them. It is intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. In formulating the Comprehensive Land Use Plan, the Los Angeles County ALUC has established provisions for safety, noise insulation, and the regulation of building height within areas adjacent to each of the public airports in the County.

Los Angeles Municipal Code

The City of Los Angeles Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of "offending" noise sources. In accordance with the LAMC, a noise source that causes a noise level increase of 5 dBA over the existing average ambient noise level as measured at an adjacent property line creates a noise violation. This standard applies to radios, television sets, air conditioning, refrigeration, heating, pumping and filtering equipment, powered equipment intended for repetitive use in residential areas, and motor vehicles driven on-site. To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide a 5 dBA allowance for a noise

source that causes noise lasting more than 5 but less than 15 minutes in any one-hour period, and an additional 5 dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting 5 minutes or less in any one-hour period.

The LAMC provides that in cases where the actual ambient conditions are not known, the City's presumed daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) minimum ambient noise levels as defined in LAMC Section 111.03 should be used. The presumed ambient noise levels for these areas where the actual ambient conditions are not known as set forth in the LAMC Sections 111.03 are provided in Table 4.9-5. For example, for residential-zoned areas, the presumed ambient noise level is 50 dBA during the daytime and 40 dBA during the nighttime.

Table 4.9-5 City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime Hours (7 a.m. to 10 p.m.) dBA (L_{eq})	Nighttime Hours (10 p.m. to 7 a.m.) dBA (L_{eq})
Residential (A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5)	50	40
Commercial (P, PB, CR, C1, C1.5, C2, C4, C5, and CM)	60	55
Manufacturing (M1, MR1 and MR2)	60	55
Heavy Manufacturing (M2 and M3)	65	65

dBA = A-weighted decibels; L_{eq} = equivalent noise level

Source: LAMC Section 111.03

LAMC Section 112.01 limits noise from amplified voice and music and prohibits the operation of such devices (e.g., radio, musical instrument, phonograph, television receiver, or other machine) or other sounds in such a manner as to disturb the peace, quiet, and comfort of neighbors. Specifically, noise from such uses or operation which is audible at a distance in excess of 150 feet from the property line of the noise source within a residential zone of the City or within 500 feet thereof, is prohibited.

LAMC Section 112.02 limits increases in noise levels from air conditioning, refrigeration, heating, pumping and filtering equipment. Such equipment may not be operated in such manner as to create any noise which would cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit, to exceed the ambient noise level by more than 5 dB.

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible. LAMC Section 41.40 prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 a.m. to 9:00 p.m.; and Saturdays and National Holidays between 8:00 a.m. to 6:00 p.m.). In general, the City's Department of Building and Safety enforces Noise Ordinance provisions relative to equipment, and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

LAMC Section 113.01 prohibits collecting or disposing of rubbish or garbage, operating any refuse disposal truck, or collecting, loading, picking up, transferring, unloading, dumping, discarding, or disposing of any rubbish or garbage, as such terms are defined in LAMC Section 66.00, within 200 feet of any residential building between the hours of 9:00 p.m. and 6:00 a.m. of the following day, unless a permit therefore has been duly obtained beforehand from the Board of Police Commissioners.

Per LAMC Section 114.03 it is unlawful to load and unload vehicles and equipment which cause any impulsive sound, raucous or unnecessary noise within 200 feet of any residential building.

Section 91.1207.14.2 prohibits interior noise levels attributable to exterior sources from exceeding 45 dBA in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the CNEL, consistent with the noise element of the local general plan.

City of Los Angeles General Plan Noise Element

The Noise Element of the City's General Plan policies include the CNEL guidelines for land use compatibility and a number of goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element is to guide policymakers in making land use determinations and in preparing noise ordinances that would limit exposure of citizens to excessive noise levels (City of Los Angeles 1999). The following policies and objectives from the Noise Element apply to the project:

- Non-Airport Policy 5: Continue to enforce, as applicable, city, state, and federal regulations intended to abate or eliminate disturbances of the peace and other intrusive noise.
- Non-Airport Policy 6: When processing building permits, continue to require appropriate project design and/or insulation measures, in accordance with the California Noise Insulation Standards (Building Code Title 24, Section 3501 et seq.), or any amendments thereto or subsequent related regulations, so as to assure that interior noise levels will not exceed the minimum ambient noise levels, as set forth in the City's noise ordinance (LAMC Section 111 et seq., and any other insulation related requirements) for a particular zone or noise sensitive use, as defined by the California Noise Insulation Standards.
- Land Use Development Policy 11: For a proposed development project that is deemed to have a potentially significant noise impact on noise sensitive uses, require mitigation measures, as appropriate, in accordance with California Environmental Quality Act and City procedures.
- Land Use Development Policy 12: When issuing discretionary permits for a proposed noise-sensitive use or subdivision of four or more detached single-family units and which use is determined to be potentially significantly impacted by existing or proposed noise sources, require mitigation measures, as appropriate, in accordance with procedures set forth in the California Environmental Quality Act so as to achieve an interior noise level CNEL of 45 dB, or less, in any habitable room as required by LAMC Section 91.
- Land Use Development Policy 13: Continue to plan, design and construct or oversee construction of public projects, and projects on City owned properties, so as to minimize potential noise impacts on noise sensitive uses and to maintain or reduce existing ambient noise levels.
- Land Use Development Policy 16: Use, as appropriate, the "Guidelines for Noise Compatible Land Use", or other measures that are acceptable to the City, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses within a CNEL of 65 dB airport noise exposure areas and within a line-of-sight of freeways, major highways, railroads or truck haul routes.

Exhibit I of the Noise Element also contains guidelines for noise compatible land uses (City of Los Angeles 1999). Table 4.9-6 summarizes these guidelines.

Table 4.9-6 City of Los Angeles Land Use Compatibility for Community Noise

Land Use	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Single-Family, Duplex, Mobile Homes	50-60	55-70	70-75	Above 75
Multifamily Homes	50-65	60-70	70-75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	Above 80
Transient Loading – Motels, Hotels	50-65	60-70	70-80	Above 75
Auditoriums, Concert Halls, Amphitheaters	--	50-70	--	Above 70
Sports Arenas, Outdoor Spectator Sports	--	50-75	--	Above 75
Playgrounds, Neighborhood Parks	50-70	--	70-80	Above 80
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	--	70-80	Above 80
Office Buildings, Business and Professional Commercial	50-70	67-77	Above 75	--
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	Above 75	--

[1] Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

[2] New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[3] New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be conducted and necessary noise insulation features included in the design.

[4] New construction or development should generally not be undertaken.

Source: City of Los Angeles 2006

4.9.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

In accordance with Appendix G of the CEQA Guidelines, an impact regarding noise and vibration would be significant if the proposed project would:

1. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
2. Generate excessive groundborne vibration or groundborne noise levels;
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

For this analysis, the Appendix G thresholds listed above are analyzed. However, the analysis considers the City of Los Angeles' 2006 CEQA Thresholds Guide, as appropriate, to assist in answering the Appendix G thresholds. The City of Los Angeles CEQA Thresholds Guide are identified below:

Construction Noise

- Construction activities lasting more than one day would exceed existing ambient exterior sound levels by 10 dBA (hourly L_{eq}) or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use; or
- Construction activities of any duration would exceed the ambient noise level by 5 dBA (hourly L_{eq}) at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or any time on Sunday.

Operational Noise

- The project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category;
- The proposed project causes the ambient noise levels measured at the property line of the affected noise-sensitive uses to increase by 5 dBA in CNEL or greater; or
- Project-related operational on-site noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, loading, trash compactor, or parking facilities, increase the ambient noise level (hourly L_{eq}) at the noise-sensitive uses by 5 dBA.

Airport Noise

- Noise levels at a noise-sensitive use attributable to airport operations exceed 65 dBA CNEL and the proposed project increases the ambient noise levels by 1.5 dB CNEL or greater.

FTA Groundborne Vibration Standards and Guidelines

The City currently does not have significance criteria to assess vibration impacts during construction. Thus, FTA guidelines set forth in FTA's Transit Noise and Vibration Assessment, dated September 2018, are used to evaluate potential impacts relating to construction vibration for both potential building damage and human annoyance. The FTA guidelines regarding construction vibration are the most current guidelines and are commonly used in evaluating vibration impacts.

- Project construction activities cause groundborne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building;
- Project construction activities cause groundborne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building;
- Project construction activities cause groundborne vibration levels to exceed 0.2 PPV at the nearest off-site on-engineered timber and masonry building; or
- Project construction activities cause groundborne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Based on FTA guidance, construction vibration impacts associated with human annoyance would be significant if the following were to occur (applicable to frequent events/70 or more vibration events per day):

- Project construction activities cause groundborne vibration levels to exceed 72 VdB at off-site sensitive uses, including residential, hotel, and theater uses.

Methodology

Construction Noise

Noise levels due to construction of the proposed project are estimated based upon available reference noise level data from construction equipment (FHWA 2006), applying a 6-dBA per doubling of distance attenuation factor based on distances between construction activities and nearest representative noise-sensitive receptor locations, and taking into account shielding effects of local physical features (i.e., buildings and/or terrain), where applicable. To determine effective distances between the selected receptors and construction activities, each construction stage area was divided into multiple grids where construction activities would occur. Construction equipment was placed at the center of each of the grids and the noise level was calculated at the receptor. Resultant noise levels from construction noise at each grid was then summed logarithmically to arrive at total construction noise level from each construction stage area. Selected receptor locations are described below.

Table 4.9-7 lists typical noise levels from commonly used equipment during construction of projects at a reference distance of 50 feet from the equipment. Typical noise levels at 50 feet from an active construction area could reach 90 dBA L_{max} during the noisiest construction phases.

Table 4.9-7 Reference Construction Equipment Noise Levels

Equipment Type	Actual L_{max} at 50 Feet (dBA)
Backhoe	78
Bulldozer	82
Compactor	83
Concrete Mixer	79
Concrete Pump	81
Concrete Saw	90
Crane, Mobile	81
Dump Truck	76
Excavator	81
Forklift	75
Grader	85
Loader	79
Pavement Breaker	90
Paver	77
Pump	81
Roller	80
Scraper	85
Sweeper	80
Tractor	84

Equipment Type	Actual L_{max} at 50 Feet (dBA)
Flatbed Truck	74
Welder	74

Lmax = maximum, instantaneous noise level
Source: FHWA 2006

327 HARBOR SITE

Construction noise levels at exterior areas of the representative neighboring noise-sensitive receptors in the vicinity of the 327 Harbor Site were estimated for each stage of construction. Expected construction stages include site preparation, grading, utilities trenching, building construction, paving, and architectural finishing. Construction noise levels were evaluated using reference noise levels of equipment, number of equipment during each construction stage, equipment utilization rates, and estimated distances to each selected receptor. The selected construction noise receptors are shown as locations C01 through C04 on Figure 4.9-5 and briefly described below:

- C01: East property line of future multi-family residential use located at 345 North Beacon Street.
- C02: East property line of multi-family residential unit at 326 North Palos Verdes Street
- C03: Exterior of multi-family residential building at 404 North Palos Verdes Street.
- C04: Northeast corner of the multi-story residential building at 201 North Beacon Street.

OSP SPECIFIC PLAN SITE

Construction of the OSP Specific Plan Site would occur in multiple stages across the three project Phases. Figure 4.9-5 shows the 11 construction stage locations that would occur within the OSP Specific Plan Site. Each stage of construction would begin with demolition of existing buildings within the stage boundaries and continue with site preparation, grading, utilities trenching, building construction, paving, and architectural coatings. Construction noise levels in the project area were evaluated for three representative construction stages, namely Stage 1, Stage 4, and Stage 7. These three construction stages were selected to represent a sufficient number of construction stages to reveal a pattern of increases over ambient noise levels due to construction activities at varying distances from the OSP Specific Plan Site. These three construction stages are most representative of construction noise that would be generated by buildout of the OSP Specific Plan Site over the 11 total construction stages. The selected construction stages provide for a reasonable worst case assessment of construction noise impacts and represent construction that would occur during the beginning, middle, and end of the proposed project's total construction period.

Construction noise levels were modeled at 10 selected receptor locations that represent the closest receptors to each project Phase, as well as locations at farther distances. Receptor locations were selected based on their proximity to future construction activities and represent a combination of receptor locations that would capture construction noise levels at sensitive receptors of varying distances from each project Phase to provide for a reasonable worst-case assessment of construction noise impacts. Results from the short-term noise monitoring, summarized in Table 4.9-1, were used to calculate ambient noise levels at the selected receptor locations. It should also be noted that some of these receptor locations are existing Rancho San Pedro residences and future residences within earlier built phases of the proposed project that could be impacted by construction noise during subsequent phases. The selected construction noise analysis locations are depicted on Figure 4.9-5 and described briefly below:

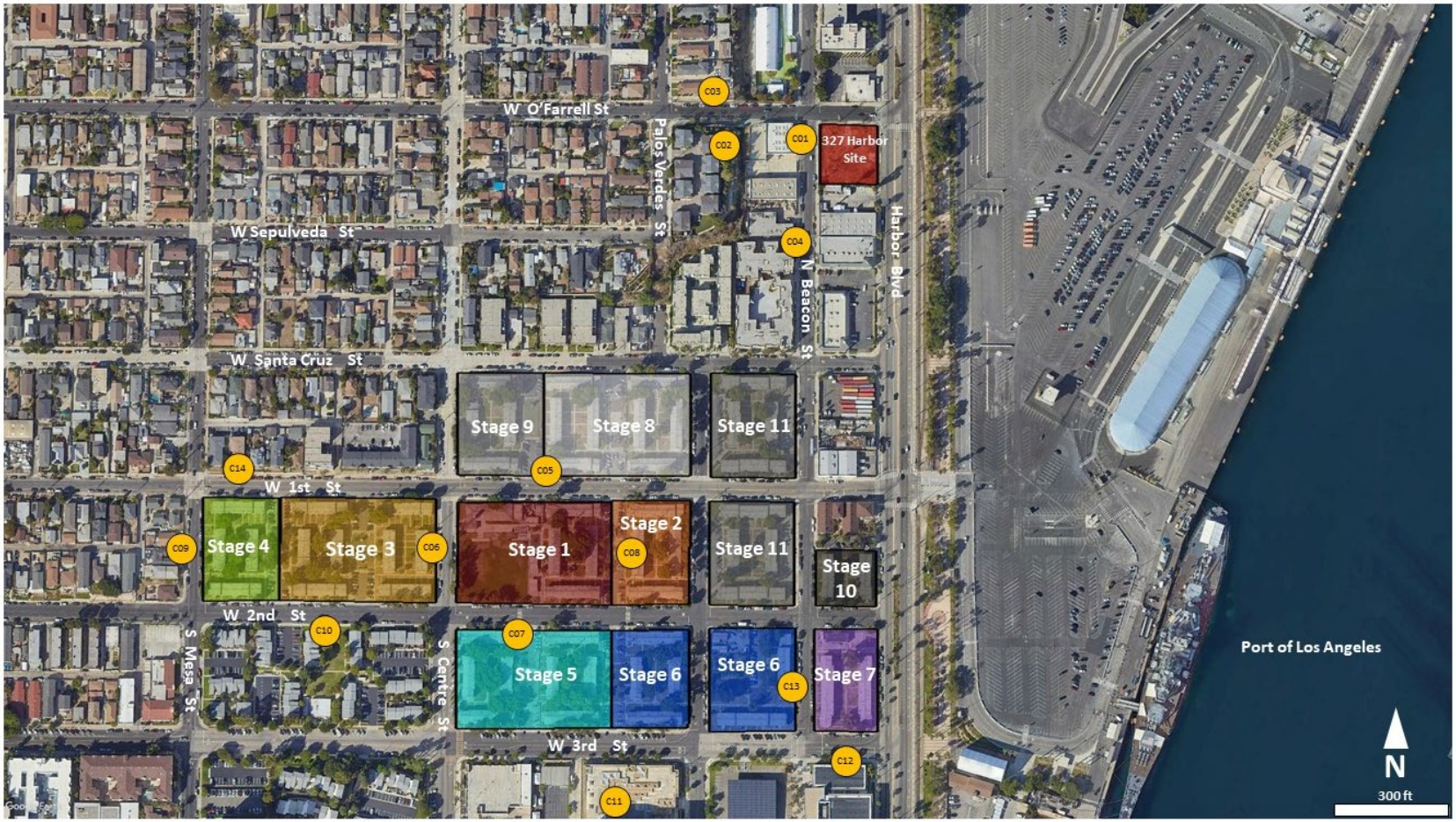
- C05: Exterior of multi-family residential building at 260 West 1st Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 7 and a future receptor during Construction Stages 9 through 11.
- C06: Outdoor activity area of multi-family residential unit at 113 South Centre Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 5 and a future receptor during Construction Stages 7 through 11.
- C07: Exterior of multi-family residential unit at 261 West 2nd Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 4 and a future receptor during Construction Stages 6 through 11.
- C08: West exterior of the multi-family residential building at 128 South Arboles Court on the OSP Specific Plan Site. This would be a future receptor for all OSP Specific Plan Site construction stages, as it would be built during Construction Stage 2.
- C09: Outdoor activity area of single-family residential use at 119 South Mesa Street. This is an existing off-site receptor and would not be changed by the project.
- C10: North exterior of multi-family residential building at 360 West 3rd Street (facing 2nd Street). This is an existing of-site receptor and would not be changed by the project.
- C11: North exterior of the port of Los Angeles Administration Building at 425 South Palos Verdes Street. This is an existing off-site receptor and would not be changed by the project.
- C12: North exterior of the Port of Los Angeles Boys & Girls Club at 100 West 5th Street (south side of 3rd Street). This is an existing off-site receptor and would not be changed by the project.
- C13: East exterior of multi-family residential use located at 211 South Beacon Street on the OSP Specific Plan Site. This is an existing receptor during Construction Stages 1 through 5 and a future receptor during Construction Stages 7 through 11.
- C14: South exterior of residential land use located at 380 West 1st Street. This is an existing off-site receptor and would not be changed by the project.

Off-Site Construction Traffic Noise

To assess the potential noise impacts of off-site traffic during construction, the following assumptions were applied for haul truck trips, vendor deliveries, and employee trips:

- Each truckload requires an inbound trip and an outbound trip.
- The daily number of truck trips was averaged over an 8-hour workday to obtain the number of peak hour truck trips (50 percent entering and 50 percent exiting).
- Each worker or vendor trip per day would consist of one inbound trip to the site and one outbound trip from the site.
- Worker trips would be one during the AM peak hour and one during the PM peak hour.
- The primary construction traffic route would be along Harbor Boulevard, 1st Street, and 3rd Street.

Figure 4.9-5 Construction Stages and Noise Analysis Locations



Potential increases in traffic noise exposure due to vehicle trips generated during construction phases with the highest traffic volumes were evaluated using existing traffic volumes on local roadways leading to the project site and adding the highest anticipated construction traffic volumes to the existing volumes. The traffic data were utilized in the FHWA Traffic Noise Model (TNM) to evaluate the differences in hourly average traffic noise level (L_{eq}) between the existing and existing with construction AM peak-hour conditions. The AM peak-hour was used for the analysis because it presents lower existing traffic volumes in the inbound direction (i.e., along southbound Harbor Boulevard), and would, therefore, result in higher increases in noise levels due to addition of construction traffic.

On-Site Operational Noise

Operational noise was analyzed in context of typical mechanical equipment on commercial and residential development, such as heating, ventilation, and air conditioning (HVAC) units and trash compacting equipment, that may generate audible noise at nearby neighboring locations. Potential recreational noise sources (i.e., youth sports field, skate park, bandshell, dog park, intermittent live entertainment) are evaluated based on their potential to violate municipal code standards and result in a significant increase in ambient noise levels.

To predict future HVAC noise associated with the proposed project at neighboring residential land uses, proposed HVAC equipment information was obtained from the project developer. Reference noise levels from the equipment were gathered from the equipment manufacturer, and a noise distance attenuation rate of 6 dBA per doubling of distance was applied to the reference equipment noise levels to predict noise levels from HVAC units at nearby residential land uses.

Off-Site Traffic Noise

Traffic noise levels for the project were estimated using the FHWA TNM, version 2.5. Key geometric inputs for the TNM were the locations of roadways, shielding features (e.g., topography and buildings), and receptors. The model was utilized to compare measured traffic noise levels with modeled noise levels at short-term field measurement locations ST01 and ST10, using the traffic count data collected at the time of the noise measurements (see Appendix A-1 of the Noise and Vibration Study Report in EIR/EIS Appendix G).

For analysis of the highest noise hours and CNEL under existing traffic conditions, existing (2021) AM and PM hourly peak-hour traffic provided by the project traffic consultant were used in the traffic noise model (Fehr & Peers 2023). The mix of vehicle types counted during the on-site noise measurements was determined to be 96 percent automobiles, 3.5 percent medium trucks, and 0.5 percent heavy trucks. This fleet mix distribution was applied to the AM and PM peak-hour volumes.

For CNEL, PM peak-hour traffic volumes were multiplied by a factor of 12.5 to arrive at an assumed average daily traffic (ADT) volume. This factor is derived from existing hourly traffic count data along Harbor Boulevard obtained from the LADOT. Time distribution of traffic was also developed from the existing count data. Based on the hourly count data, the 24-hour distribution of traffic that is used in the noise analysis is approximately 76 percent during daytime hours (7:00 a.m. to 7:00 p.m.), 11 percent during evening hours (7:00 p.m. to 10:00 p.m.), and 13 percent during nighttime (10:00 p.m. to 7:00 a.m.). Evening and nighttime traffic volumes were multiplied by factors of 3 and 10, respectively, to arrive at an equivalent 24-hour volume for calculating the CNEL.

Similarly, for future (2037) traffic conditions under the No Build and Build scenarios, AM and PM peak hour traffic data were obtained from the project traffic engineer. For CNEL calculations, the 24-hour distribution of traffic was applied to the estimated ADT, and the resultant traffic volumes were input into the noise model.

Groundborne Vibration

The project would not include substantial vibration sources associated with operation. Construction activities have the greatest potential to generate groundborne vibration affecting nearby noise sensitive receptors. Construction vibration levels that could occur due to buildout of the project are based on reference vibration levels published by the FTA. Groundborne vibration attenuation rates were applied to reference vibration levels from construction machinery to predict the levels of construction vibration at the nearest structures to the project site. Estimated construction vibration levels are compared with applicable building damage and human perceptibility criteria to determine project vibration impacts at neighboring receptors.

b. Project Design Features

Construction and operation of the project would be implemented in accordance with applicable regulatory requirements (refer to Section 4.9.2, *Regulatory Setting*). No specific Project Design Features are proposed with regard to noise and vibration.

c. Project Impacts and Mitigation Measures

Threshold 1:	Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact NOI-1 CONSTRUCTION OF THE PROJECT WOULD TEMPORARILY INCREASE AMBIENT NOISE LEVELS IN THE PROJECT VICINITY, WHICH WOULD RESULT IN A SIGNIFICANT IMPACT. ALTHOUGH IMPLEMENTATION OF MITIGATION MEASURE NOI-1 WOULD MINIMIZE CONSTRUCTION NOISE AT NEARBY NOISE-SENSITIVE LAND USES TO THE EXTENT FEASIBLE, PROJECT CONSTRUCTION NOISE LEVELS COULD STILL EXCEED ESTABLISHED THRESHOLDS. ADDITIONALLY, PROJECT OPERATION WOULD INTRODUCE NEW NOISE SOURCES AND CONTRIBUTE TO PERMANENT INCREASES IN AMBIENT NOISE LEVELS, WHICH WOULD RESULT IN A SIGNIFICANT IMPACT. ALTHOUGH IMPLEMENTATION OF MITIGATION MEASURE NOI-2 WOULD MINIMIZE TEMPORARY AND PERMANENT NOISE INCREASES AT ADJACENT LAND USES TO THE EXTENT FEASIBLE DURING PROJECT CONSTRUCTION AND OPERATION, THE PROJECT'S CONSTRUCTION AND OPERATIONAL NOISE LEVELS COULD STILL EXCEED ESTABLISHED THRESHOLDS. THEREFORE, EVEN WITH IMPLEMENTATION OF MITIGATION MEASURES NOI-1 AND NOI-2, CONSTRUCTION NOISE AND OPERATIONAL NOISE FROM STATIONARY RECREATIONAL SOURCES COULD EXCEED ESTABLISHED SIGNIFICANCE THRESHOLDS FOR TEMPORARY AND PERMANENT NOISE IMPACTS WOULD REMAIN SIGNIFICANT AND UNAVOIDABLE. PROJECT NOISE ASSOCIATED WITH CONSTRUCTION TRAFFIC, ON-SITE STATIONARY OPERATIONAL EQUIPMENT, AND OPERATIONAL TRAFFIC WOULD NOT EXCEED ESTABLISHED THRESHOLDS, AND IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The proposed project would involve the phased demolition of existing structures on the OSP Specific Plan Site and the construction of up to 1,553 multi-family residential units, 85,000 sf of services, amenities and administration uses, and 45,000 sf of local-serving commercial/retail uses. The 327 Harbor Site would be developed with 47 residential units to serve as replacement housing for current Rancho San Pedro residents during construction on the OSP Specific Plan Site. Two project development scenarios are proposed (see Section 2, *Project Description*) that would involve phasing

construction on the OSP Specific Plan Site in different ways. Under Scenario A, the densest development would be located in Phases 2 and 3, whereas under Scenario B, development would be densest in Phases 1 and 2. Under both Scenarios, the footprint of development would be identical, construction and grading activities would be the same, and the construction equipment and timing of each phase would be the same. Therefore, the construction noise analysis applies to both Scenario A and Scenario B. Under both Scenarios, the same types and amounts of land uses would be developed as a whole. Therefore, the operational noise analysis applies to both Scenario A and Scenario B.

Construction

On-Site Construction Noise

OSP Specific Plan Site

Construction on the OSP Specific Plan Site would occur in multiple stages. Each stage of construction would begin with demolition of existing buildings within the stage boundaries and continue with site preparation, grading, utilities trenching, building construction, paving, and architectural coatings.

Based on the estimated construction noise levels, project construction would result in significant noise impacts at immediate adjoining existing and future residential uses next to each construction site and at other nearby residential locations with direct line-of-sight to the construction site. Construction noise at the OSP Specific Plan Site during Construction Stages 1, 4, and 7 is summarized in Table 4.9-8, Table 4.9-9, and Table 4.9-10, respectively. At residential locations immediately adjacent to OSP Specific Plan construction areas, including existing Rancho San Pedro residences, average construction noise levels (L_{eq}) could exceed the existing ambient noise levels by as much as 20 to 23 dBA, which would exceed the City's 5-dBA increase threshold of significance. At locations beyond the first rows of buildings immediately adjacent to the construction stages, where direct line-of-sight to construction activities are blocked by existing building structures, construction noise levels would generally be below the threshold of significance. Therefore, construction noise impacts from construction of the OSP Specific Plan Site would be potentially significant.

Table 4.9-8 OSP Specific Plan Site Construction Stage 1 Combined Construction and Existing Noise Levels

Receptor Location	Existing Sound Level (dBA, L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
Demolition						
C05	56	61	76	76	+20	Yes
C06	56	61	73	73	+17	Yes
C07	52	57	75	75	+23	Yes
C08	56	61	75	76	+20	Yes
C09	55	60	49	56	+1	No
C10	52	57	66	66	+14	Yes
C11	59	64	51	60	+1	No
C12	60	65	49	60	-0-	No
C13	59	64	51	60	+1	No
C14	56	61	59	60	+4	No

Receptor Location	Existing Sound Level (dBA, L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA $_{Leq}$)	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
Site Preparation						
C05	56	61	64	65	+9	Yes
C06	56	61	63	64	+8	Yes
C07	52	57	59	60	+8	Yes
C08	56	61	66	66	+10	Yes
C09	55	60	38	55	-0-	No
C10	52	57	55	57	+5	Yes
C11	59	64	40	59	-0-	No
C12	60	65	37	60	-0-	No
C13	59	64	40	59	-0-	No
C14	56	61	48	57	+1	No
Grading						
C05	56	61	78	78	+22	Yes
C06	56	61	76	76	+20	Yes
C07	52	57	77	77	+25	Yes
C08	56	61	78	78	+22	Yes
C09	55	60	51	56	+1	No
C10	52	57	68	68	+16	Yes
C11	59	64	53	60	+1	No
C12	60	65	50	60	-0-	No
C13	59	64	53	60	+1	No
C14	56	61	60	61	+4	No
Utilities Trenching						
C05	56	61	77	77	+21	Yes
C06	56	61	76	76	+20	Yes
C07	52	57	78	78	+26	Yes
C08	56	61	78	78	+22	Yes
C09	55	60	50	56	+1	No
C10	52	57	67	67	+15	Yes
C11	59	64	52	60	+1	No
C12	60	65	50	60	-0-	No
C13	59	64	52	60	+1	No
C14	56	61	60	61	+5	Yes
Building Construction						
C05	56	61	69	69	+13	Yes
C06	56	61	68	68	+12	Yes
C07	52	57	66	66	+14	Yes
C08	56	61	70	70	+14	Yes

Receptor Location	Existing Sound Level (dBA, L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
C09	55	60	42	55	-0-	No
C10	52	57	59	60	+8	Yes
C11	59	64	44	59	-0-	No
C12	60	65	41	60	-0-	No
C13	59	64	44	59	-0-	No
C14	56	61	51	57	+1	No
Paving						
C05	56	61	72	72	+16	Yes
C06	56	61	71	71	+15	Yes
C07	52	57	72	72	+20	Yes
C08	56	61	73	73	+17	Yes
C09	55	60	45	55	-0-	No
C10	52	57	62	63	+11	Yes
C11	59	64	47	59	-0-	No
C12	60	65	44	60	-0-	No
C13	59	64	47	59	-0-	No
C14	56	61	54	58	+2	No
Architectural Coating						
C05	56	61	68	68	+12	Yes
C06	56	61	67	67	+11	Yes
C07	52	57	68	68	+16	Yes
C08	56	61	69	69	+13	Yes
C09	55	60	41	55	-0-	No
C10	52	57	58	59	+7	Yes
C11	59	64	44	59	-0-	No
C12	60	65	41	60	-0-	No
C13	59	64	43	59	-0-	No
C14	56	61	51	57	+1	No

dBA = A-weighted decibels; L_{eq} = equivalent sound level

[1] Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA.

Source: A/E Tech LLC 2023

Table 4.9-9 OSP Specific Plan Site Construction Stage 4 Combined Construction and Existing Noise Levels

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA $_{Leq}$)	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
Demolition						
C05	56	61	52	58	+2	No
C06	56	61	52	57	+1	No
C07	52	57	52	55	+3	No
C08	56	61	45	56	-0-	No
C09	55	60	75	75	+20	Yes
C10	52	57	68	68	+16	Yes
C11	59	64	44	59	-0-	No
C12	60	65	41	60	-0-	No
C13	59	64	42	59	-0-	No
C14	56	61	75	75	+19	Yes
Site Preparation						
C05	56	61	40	56	-0-	No
C06	56	61	43	56	-0-	No
C07	52	57	40	52	-0-	No
C08	56	61	34	56	-0-	No
C09	55	60	64	64	+9	Yes
C10	52	57	58	59	+7	Yes
C11	59	64	32	59	-0-	No
C12	60	65	30	60	-0-	No
C13	59	64	39	59	-0-	No
C14	56	61	64	65	+9	Yes
Grading						
C05	56	61	53	58	+2	No
C06	56	61	53	58	+2	No
C07	52	57	53	56	+4	No
C08	56	61	47	56	-0-	No
C09	55	60	77	77	+22	Yes
C10	52	57	70	70	+18	Yes
C11	59	64	45	59	-0-	No
C12	60	65	42	60	-0-	No
C13	59	64	43	59	-0-	No
C14	56	61	62	63	+7	Yes
Utilities Trenching						
C05	56	61	53	58	+2	No
C06	56	61	53	58	+2	No

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
C07	52	57	53	56	+4	No
C08	56	61	46	56	-0-	No
C09	55	60	76	76	+21	Yes
C10	52	57	69	69	+17	Yes
C11	59	64	45	59	-0-	No
C12	60	65	42	60	-0-	No
C13	59	64	43	59	-0-	No
C14	56	61	76	76	+20	Yes
Building Construction						
C05	56	61	46	56	-0-	No
C06	56	61	44	56	-0-	No
C07	52	57	45	53	+1	No
C08	56	61	38	56	-0-	No
C09	55	60	68	68	+13	Yes
C10	52	57	60	61	+9	Yes
C11	59	64	37	59	-0-	No
C12	60	65	34	60	-0-	No
C13	59	64	35	59	-0-	No
C14	56	61	67	67	+11	Yes
Paving						
C05	56	61	49	57	+1	No
C06	56	61	47	57	+1	No
C07	52	57	48	54	+2	No
C08	56	61	41	56	-0-	No
C09	55	60	71	71	+16	Yes
C10	52	57	63	63	+11	Yes
C11	59	64	40	59	-0-	No
C12	60	65	37	60	-0-	No
C13	59	64	38	59	-0-	No
C14	56	61	70	70	+14	Yes
Architectural Coating						
C05	56	61	45	56	-0-	No
C06	56	61	44	56	-0-	No
C07	52	57	44	53	+1	No
C08	56	61	38	56	-0-	No
C09	55	60	68	68	+13	Yes
C10	52	57	61	61	+9	Yes
C11	59	64	37	59	-0-	No

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
C12	60	65	34	60	-0-	No
C13	59	64	35	59	-0-	No
C14	56	61	68	68	+12	Yes

dBA = A-weighted decibels; L_{eq} = equivalent sound level

[1] Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA.

Source: A/E Tech LLC 2023

Table 4.9-10 OSP Specific Plan Site Construction Stage 7 Combined Construction and Existing Noise Levels

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
Demolition						
C05	56	61	45	56	-0-	No
C06	56	61	44	56	-0-	No
C07	52	57	51	55	+3	No
C08	56	61	49	57	+1	No
C09	55	60	41	55	-0-	No
C10	52	57	43	53	+1	No
C11	59	64	58	61	+2	No
C12	60	65	74	74	+14	Yes
C13	59	64	77	77	+18	Yes
C14	56	61	41	56	-0-	No
Site Preparation						
C05	56	61	34	56	-0-	No
C06	56	61	33	56	-0-	No
C07	52	57	39	52	-0-	No
C08	56	61	38	56	-0-	No
C09	55	60	29	55	-0-	No
C10	52	57	31	52	-0-	No
C11	59	64	45	59	-0-	No
C12	60	65	63	65	+5	No
C13	59	64	65	66	+7	Yes
C14	56	61	30	56	-0-	No
Grading						
C05	56	61	51	57	+1	No
C06	56	61	46	56	-0-	No
C07	52	57	52	55	+3	No

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
C08	56	61	51	57	+1	No
C09	55	60	42	55	-0-	No
C10	52	57	44	53	+1	No
C11	59	64	58	62	+3	No
C12	60	65	75	75	+15	Yes
C13	59	64	78	78	+19	Yes
C14	56	61	43	56	-0-	No
Utilities Trenching						
C05	56	61	46	56	-0-	No
C06	56	61	45	56	-0-	No
C07	52	57	52	55	+3	No
C08	56	61	51	57	+1	No
C09	55	60	41	55	-0-	No
C10	52	57	44	53	+1	No
C11	59	64	59	62	+3	No
C12	60	65	75	75	+15	Yes
C13	59	64	78	78	+19	Yes
C14	56	61	42	56	-0-	No
Building Construction						
C05	56	61	38	56	-0-	No
C06	56	61	37	56	-0-	No
C07	52	57	44	53	+1	No
C08	56	61	42	56	-0-	No
C09	55	60	33	55	-0-	No
C10	52	57	35	52	-0-	No
C11	59	64	51	60	+1	No
C12	60	65	66	67	+7	Yes
C13	59	64	69	70	+11	Yes
C14	56	61	34	56	-0-	No
Paving						
C05	56	61	41	56	-0-	No
C06	56	61	40	56	-0-	No
C07	52	57	47	53	+1	No
C08	56	61	45	56	-0-	No
C09	55	60	36	55	-0-	No
C10	52	57	38	52	-0-	No
C11	59	64	54	60	+1	No
C12	60	65	69	70	+10	Yes

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
C13	59	64	72	72	+13	Yes
C14	56	61	37	56	-0-	No
Architectural Coating						
C05	56	61	38	56	-0-	No
C06	56	61	37	56	-0-	No
C07	52	57	43	53	+1	No
C08	56	61	42	56	-0-	No
C09	55	60	33	55	-0-	No
C10	52	57	36	52	-0-	No
C11	59	64	50	59	-0-	No
C12	60	65	66	67	+7	Yes
C13	59	64	70	70	+11	Yes
C14	56	61	34	56	-0-	No

dBA = A-weighted decibels; L_{eq} = equivalent sound level

[1] Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA.

Source: A/E Tech LLC 2023

327 HARBOR SITE

Construction noise levels at exterior areas of the representative neighboring noise sensitive receptors in the vicinity of the 327 Harbor Site were estimated for each type of construction activity. Expected construction activities include site preparation, grading, utilities trenching, building construction, paving, and architectural coating. Construction noise levels were evaluated using reference noise levels of equipment, types and number of equipment, equipment utilization rates, and estimated distances to each selected receptor for each type of construction activity.

Table 4.9-11 summarizes construction noise levels for each construction activity at the 327 Harbor Site. As shown in Table 4.9-11, construction noise would increase noise levels by up to 18 dBA above existing noise levels at receptor location C01 during the utilities trenching, which would exceed the City's 5-dBA increase threshold of significance. Therefore, construction noise impacts from construction of the 327 Harbor Site would be potentially significant.

Table 4.9-11 327 Harbor Site Combined Construction and Existing Noise Levels

Receptor Location	Existing Sound Level (dBA L_{eq})	Significance Threshold (dBA L_{eq})[1]	Estimated Construction Noise Level (dBA L_{eq})	Combined Construction + Existing Noise Level (dBA L_{eq})	Increase Above Existing Noise Level (dBA L_{eq})	Significant Noise Impact?[1]
Site Preparation						
C01	60	65	63	65	+5	Yes
C02	58	63	51	59	+1	No
C03	58	63	49	59	+1	No
C04	57	62	54	59	+2	No
Grading						
C01	60	65	77	77	+17	Yes
C02	58	63	64	65	+7	Yes
C03	58	63	63	64	+6	Yes
C04	57	62	68	68	+11	Yes
Utilities Trenching						
C01	60	65	78	78	+18	Yes
C02	58	63	66	66	+8	Yes
C03	58	63	64	65	+7	Yes
C04	57	62	69	69	+12	Yes
Building Construction						
C01	60	65	70	71	+11	Yes
C02	58	63	58	61	+3	No
C03	58	63	56	60	+2	No
C04	57	62	61	63	+6	Yes
Paving						
C01	60	65	74	74	+14	Yes
C02	58	63	62	63	+5	Yes
C03	58	63	60	62	+4	No
C04	57	62	65	66	+9	Yes
Architectural Coating						
C01	60	65	63	65	+5	Yes
C02	58	63	51	59	+1	No
C03	58	63	49	59	+1	No
C04	57	62	54	59	+2	No

dBA = A-weighted decibels; L_{eq} = equivalent sound level

[1] Noise impact significance threshold is set at existing measured ambient noise level plus 5 dBA

Source: A/E Tech LLC 2023

Off-Site Construction Noise

During construction of the project, there would be additional traffic on area roadways due to worker vehicle trips, vendor deliveries, and haul trucks carrying materials to and from the project site.

Construction-related off-site traffic would increase noise levels along area roadways and result in noise impacts.

Table 4.9-12 summarizes the comparison of calculated existing AM peak-hour L_{eq} values between the baseline and existing with construction conditions. As shown in Table 4.9-12, vehicular traffic related to project construction would increase hourly traffic noise levels by less than 1 dBA L_{eq} at locations along Harbor Boulevard and by approximately 2 dBA L_{eq} at the exterior of residential uses along 1st Street and 3rd Street. The project's construction-related increases in traffic noise would not exceed the City's 5-dBA significance threshold.

Table 4.9-12 Comparison of AM Peak Hour Traffic Between Existing and Existing with Construction Conditions

Receptor Location	Address	Calculated Hourly Traffic Noise Level (L_{eq}, dBA)		
		Existing	With Construction[1,2]	Noise Level Change
M01	327 Harbor Blvd.	68.2	68.8	0.6
M02	Residential buildings along W. 1st St., west of Harbor Blvd.	58.0	60.3	2.3
M03	Residential units on Harbor Blvd., between 1st St. and 2nd St.	67.8	68.1	0.3
M04	Residential buildings on Harbor Blvd., between 2nd St. and 3rd St.	67.9	68.2	0.3
M05	Residential buildings on W. 3rd St., west of Harbor Blvd.	60.5	62.4	1.9

dBA = A-weighted decibels; L_{eq} = equivalent sound level

[1]Based on the construction traffic assumptions, a total of 38 employee automobiles would travel to the project site in the AM peak hour and 14 trucks would arrive at and depart from the project site during this hour.

[2]Construction traffic is assumed to travel on Harbor Boulevard and then split evenly between 1st Street and 3rd Street.

Source: A/E Tech LLC 2023

On an average daily basis, the project construction traffic during its most intense periods would increase the ADT volume on area roadways by 755 vehicle trips, including 622 employee vehicle trips and 133 vendor deliveries in and out of the project site. This increase in daily traffic would result in an increase of up to 0.2 dBA CNEL at locations along Harbor Boulevard. Along 1st Street and 3rd Street, added construction traffic would result in traffic noise level increases of less than 1 dBA in CNEL. Increases in construction traffic noise would not exceed the City's 5-dBA significance threshold. Therefore, off-site construction noise impacts would be less than significant.

Operational Noise

Operation of the project would generate noise from on-site stationary sources, stationary recreational sources, and traffic. On-site stationary sources of noise include HVAC equipment on the OSP Specific Plan Site and 327 Harbor Site. Stationary recreational noise sources include the youth sports field and potential skate park, bandshell, and/or dog park on the OSP Specific Plan Site.

On-Site Stationary Operational Noise

HVAC equipment for the project would include mini-split condensers located on the balconies of individual residential units. Based on manufacturer's specifications, the single-zone outdoor units would generate sound pressure levels in the range of 49 to 51 dBA at an assumed distance of 25 feet from the equipment. Sound pressure levels from the multi-zone system range between 50 to 54 dBA.

According to project plans, the nearest distances from neighboring residential uses to future buildings to be developed by the project range from 70 to 90 feet. At these distances, HVAC noise would be below 50 dBA, which is well below the existing daytime average ambient noise levels in the project area. During nighttime hours (10:00 p.m. to 7:00 a.m.), the City's presumed ambient noise level for residential areas is 40 dBA (see Table 4.9-5). Based on such levels, the LAMC noise level limit for stationary equipment at the premises of any other occupied residential property would be 45 dBA (i.e., 5 dBA plus the presumed ambient noise level). At a distance of 70 feet from the proposed project, the maximum noise levels from HVAC equipment would be 45 dBA, which would not exceed the nighttime limit. Therefore, impacts from on-site stationary operational equipment at the OSP Specific Plan Site and 327 Harbor Site would be less than significant.

Future residences within earlier built phases of the proposed project would be operational during construction of subsequent phases. While stationary operational noise sources from those operational portions of the project site would occur along with construction noise from subsequent phases, construction noise would overshadow project operational noise. When combining noise levels, when one source (e.g., construction) is 10 dBA or more than the other source (stationary operational), the combination is negligible and the added decibel level is effectively zero (Caltrans 2013).On-Site Stationary Recreational Noise

Stationary recreational noise would be generated by the proposed youth sports field located between 1st Street and 2nd Street, east of South Centre Street. The proposed youth sports field would include a public announcement (PA) sound system; however, details of the youth sports field, such as the location and height of the PA sound system speakers is unknown and would be determined during final design of the proposed project. In addition, other potential recreational uses, such as a skate park, bandshell, and/or dog park, may be built within the planned open space facilities throughout the OSP Specific Plan Site, the details of which would be determined during final project design. No stationary recreational noise sources would be present on the 327 Harbor Site.

LAMC Section 112.01 limits noise from amplified voice and music and prohibits the operation of such devices (e.g., radio, musical instrument, phonograph, television receiver, or other machine) or other sounds in such a manner as to disturb the peace, quiet, and comfort of neighbors. Specifically, noise from such uses or operation which is audible at a distance more than 150 feet from the property line of the noise source within a residential zone of the City or within 500 feet thereof, is prohibited.

Because the precise locations of the speakers for the amplified PA sound system at the proposed youth sports field is currently unknown, the PA systems could potentially result in noise levels exceeding the existing ambient noise levels at neighboring residential land uses by more than 5 dBA, which would result in a significant impact. Similarly, the precise locations and details of other potential recreational uses, such as a skatepark, bandshell, and/or dog park, are currently unknown, and could also result in a significant noise impact to existing/future residents at the OSP Specific Plan Site. As previously stated, the details of the proposed youth sports field and the other potential recreational uses would be determined during the final design of the project. Because the potential noise levels associated with the amplified PA sound system at the youth sports field and other potential recreational uses is currently unknown, this analysis conservatively assumes operational noise impacts from these stationary recreational uses would be potentially significant.

Off-Site Traffic Noise

Future (2037) forecast peak-hour traffic volumes under the No Build and Build conditions were obtained from the project traffic engineer. Based on the 24-hour traffic conversion assumptions, equivalent 24-hour traffic volumes were developed and input into the traffic noise model. From the

resultant traffic volumes, future (2037) traffic noise levels over a typical 24-hour period were predicted in terms of CNEL for No Build and Build conditions. Table 4.9-13 summarizes the results of future traffic noise levels and their comparison to existing traffic CNEL values. Refer to Table 4.9-2 above for the location of the receptors.

Table 4.9-13 Existing (2021) and Predicted Future (2037) CNEL

Receptor I.D.	Land Use	Existing (2021) CNEL, dBA	Future (2037) No Build CNEL, dBA	Future (2037) Build CNEL, dBA	No Build Noise Level Minus Existing, dBA	Build Noise Level Minus Existing, dBA	Significant Impact?
M01	RES	70	71	71	1	1	No
M02	RES	59	61	62	2	3	No
M03	RES	69	70	70	1	1	No
M04	RES	69	70	70	1	1	No
M05	RES	60	60	62	0	2	No
M06	RES	62	64	65	2	3	No
M07	COM	68	69	69	1	1	No
M08	COM	72	73	73	1	1	No

CNEL = community noise equivalent level; RES = residential; COM = commercial; dBA = A-weighted decibels
Source: A/E Tech LLC 2023

As shown in Table 4.9-13, in the locations where the project would cause the ambient noise levels to be within the "normally unacceptable" CNEL of 70 dBA or higher, project-related noise increases would be only 1 dBA, which is below the 3-dBA significance threshold. At other locations where future noise levels would be within the "conditionally acceptable" range (below 70 dBA), noise level increases due to the project would be between 1 to 3 dBA. As such, increases would be below the 5-dBA significance threshold. Therefore, traffic noise generated by the proposed project would be less than significant.

Mitigation Measures

NOI-1 Construction Noise Reduction Measures

The following measures shall be implemented at the project site during construction to minimize the community exposure to construction noise:

- All construction equipment shall be outfitted with manufacturer-recommended mufflers and silencers.
- Staging and delivery areas shall be located as far as feasible from existing residences.
- Material hauling and deliveries shall be coordinated by the construction contractor to reduce the potential of trucks waiting to unload for protracted periods of time.
- To the extent feasible, hydraulic equipment shall be used instead of pneumatic impact tools, and electric powered equipment shall be used instead of diesel-powered equipment.

- For smaller equipment (such as air compressors and small pumps), line powered (electric) equipment shall be used to the extent feasible.
- Stationary noise sources (e.g., generators and air compressors) shall be located as far from sensitive receptors as possible, and they shall be muffled and enclosed within temporary sheds, or insulation barriers.
- Signs shall be posted at the job site entrance(s), within the on-site construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment shall be turned off if not in use for more than 5 minutes. The construction manager shall be responsible for enforcing this.
- At least 10 days prior to the start of construction activities, a sign shall be posted at the entrance(s) to the job site, clearly visible to the public, that includes permitted construction days and hours, as well as the telephone numbers of the City's and contractor's authorized representatives that are assigned to respond in the event of a noise or vibration complaint. If the authorized contractor's representative receives a complaint, they shall investigate, take appropriate corrective action, and report the action to the City. The sign will have a minimum dimension of 48 inches wide by 24 inches high. The sign shall be placed 5 feet above ground level.
- Temporary noise barriers of 12 feet in height shall be erected along the project property boundaries adjacent to sensitive receivers. Barriers shall be constructed with a solid material that has a density of at least 1.5 pounds per square foot with no gaps from the ground to the top of the barrier. Alternately, if an acoustical blanket, curtain or equivalent absorptive material is used, it shall be rated sound transmission class (STC) 32 or higher.

NOI-2 Stationary Recreational Noise Reduction Measures

The following measure shall be included to minimize stationary recreational noise at the OSP Specific Plan Site:

- Prior to holding the first amplified event at any new site with amplified sound (e.g., at the youth sports field and bandshell), HACLA or its designee shall install signs at entry points that state prohibited activities during the event (e.g., use of air horns, unapproved audio amplification systems, loud activity in parking lots or streets upon exiting the facility). In addition, and prior to holding the first amplified event at the facility, the sound system contractor shall create a PA System Design Plan to minimize special event noise at nearby residences, to the extent feasible. Design measures may include, but are not limited to, bandwidth and peak limiter installation, and speaker angle and directivity techniques. Prior to the first amplified special event, the sound system contractor shall perform a system check to verify that the PA system meets the PA System Design Plan.
- Once the precise locations and design details of the project's proposed youth sports field and other potential recreational uses, such as a skate park, bandshell, and/or dog park, is finalized, HACLA or its designee shall conduct a quantitative analysis of the operational noise levels from such sources to determine if the project's recreational uses would result in an exceedance of the City of Los Angeles' exterior noise level standards. If these recreational uses will not exceed established thresholds, no additional measures are necessary. However, if it is determined that these recreational uses could potentially result in exceedance of the City's adopted exterior noise standards, the project Applicant shall be required to implement additional feasible measures to minimize noise generated at the recreational uses. Such additional measures to reduce recreational noise impacts may include, but are not limited to, operational hour restrictions,

setbacks, barriers, and other shielding techniques. HACLA shall verify these additional measures are included on the final site plan prior to issuing construction permits for the recreational uses.

Significance After Mitigation

Implementation of Mitigation Measure NOI-1 would minimize construction noise levels by outfitting construction equipment with mufflers and silencers, locating staging and delivery areas as far from existing residences as feasible, requiring the use of hydraulic equipment instead of pneumatic impact tools, enclosing stationary noise sources in temporary sheds or within barriers, prohibiting engine idling, notifying nearby business and residents of the planned construction activities, and erecting a temporary barrier along the project property boundaries adjacent to sensitive receptors. The use of noise barriers would reduce construction noise levels by up to 15 dBA at first--story receptors, which would reduce construction noise impacts to less than significant levels at these receptors. However, the barriers would not substantially reduce noise levels for second--story and higher receptors. Therefore, existing and future on-site receptors at the OSP Specific Plan Site and existing off-site receptors near the OSP Specific Plan Site and 327 Harbor Site in buildings with two or more stories would experience significant construction noise impacts, even with implementation of Mitigation Measure NOI-1. Construction noise impacts would remain significant and unavoidable.

Implementation of Mitigation Measure NOI-2 would reduce stationary recreational noise associated with operation of the project's proposed youth sports field and other potential recreational uses, such as a skatepark, bandshell, and/or dog park, on the OSP Specific Plan Site by requiring a PA System Design Plan to reduce amplified noise from these recreational uses. Mitigation Measure NOI-2 also requires additional quantitative noise analyses once the final design of the project's recreational uses is complete and the precise locations of recreational features, including the location of speakers for the PA system(s). However, because the final design of the project's proposed youth sports field and other potential recreational uses are not currently known, it may not be possible to reduce noise from these recreational areas, including during amplified events at the sports field and/or other potential recreational uses. Therefore, stationary recreational noise impacts would remain significant and unavoidable.

Threshold 2:	Would the project generate excessive groundborne vibration or groundborne noise levels?

Impact NOI-2 PROJECT CONSTRUCTION WOULD INTERMITTENTLY GENERATE GROUNDBORNE VIBRATION ON THE PROJECT SITE THAT COULD RESULT IN A SIGNIFICANT IMPACT RELATED TO ARCHITECTURAL DAMAGE AND HUMAN ANNOYANCE. WITH IMPLEMENTATION OF MITIGATION MEASURE NOI-3, CONSTRUCTION VIBRATION WOULD BE REDUCED AND ASSOCIATED ARCHITECTURAL IMPACTS WOULD BE LESS THAN SIGNIFICANT. HOWEVER, THERE IS NO MITIGATION AVAILABLE TO REDUCE IMPACTS RELATED TO HUMAN ANNOYANCE FROM CONSTRUCTION-RELATED VIBRATION, AND SUCH IMPACTS WOULD REMAIN SIGNIFICANT AND UNAVOIDABLE. OPERATION OF THE PROJECT WOULD NOT INCLUDE SUBSTANTIAL SOURCES OF VIBRATION OR GROUNDBORNE NOISE, AND THEREFORE, OPERATIONAL IMPACTS RELATED TO GROUNDBORNE VIBRATION AND GROUNDBORNE NOISE WOULD BE LESS THAN SIGNIFICANT.

The proposed project would involve the phased demolition of existing structures on the OSP Specific Plan Site and the construction of up to 1,553 multi-family residential units, 85,000 sf of services, amenities and administration uses, and 45,000 sf of local-serving commercial/retail uses. The 327 Harbor Site would be developed with 47 residential units to serve as replacement housing for current Rancho San Pedro residents during construction on the OSP Specific Plan Site. Two project development scenarios are proposed (see Section 2, *Project Description*) that would involve phasing

construction on the OSP Specific Plan Site in different ways. Under Scenario A, the densest development would be located in Phases 2 and 3, whereas under Scenario B, development would be densest in Phases 1 and 2. Under both Scenarios, the footprint of development would be identical, construction and grading activities would be the same, the same construction equipment would be used, and the same types and amounts of land uses would be developed as a whole. Therefore, this analysis applies to both Scenario A and Scenario B.

Use of heavy equipment during project construction could result in vibration at nearby buildings. Based on FTA recommendations, limiting vibration levels to below 0.2 in/sec PPV at residential structures would prevent architectural damage regardless of building construction type and limiting vibration levels to below 72 VdB at off-site sensitive receptors would prevent human annoyance. Construction activities known to generate excessive groundborne vibration, such as pile driving, would not be conducted during project construction. The greatest anticipated source of vibration during project construction activities would be from a vibratory roller and other earth moving equipment, such as a dozer.

Construction would generally occur at distances of 70 to 90 feet from the nearest receptors but roadway and utility work could occasionally occur within 25 feet of structures. It is assumed large dozers and vibratory rollers may be used within 25 feet of the nearest receptors. At a distance of 25 feet, a large dozer generates up to approximately 0.09 in/sec PPV and a vibratory roller generates up to 0.21 in/sec PPV. Therefore, if a vibratory roller were to operate within 25 feet of a nearby receptor, the 0.2 in/sec PPV threshold for architectural damage could be exceeded. Similarly, if grading equipment such as a large dozer operates within approximately 15 feet of a nearby receptor, the 0.2 in/sec PPV threshold for architectural damage may be exceeded, and impacts related to the potential for building damage would be potentially significant. In terms of human annoyance, the estimated vibration levels generated by a vibratory roller would be in the range of 84 VdB to 87 VdB. From a large dozer, the estimated vibration levels would be 76 VdB to 79 VdB. Such levels would exceed the potential human annoyance threshold of 72 VdB for frequent intermittent events at the residential buildings nearest to the project site, and construction impacts would be potentially significant.

Operation of the project would not include substantial groundborne vibration or groundborne noise sources associated with operation, such as rail or subway. Therefore, operational groundborne vibration and groundborne noise impacts would be less than significant.

Mitigation Measures

NOI-3 Construction Vibration Reduction Measures

Prior to the issuance of grading permits, the following measures shall be included as notes on all construction plans:

- If paving activities occur within 25 feet of off-site buildings or structures, a pneumatic or static roller shall be used in lieu of a vibratory roller.
- Grading and earthwork activities within 15 feet of adjacent residential structures shall be conducted with off-road equipment that is limited to 100 horsepower or less.

Significance After Mitigation

With implementation of Mitigation Measure NOI-3, alternative equipment would be used near off-site receptors to reduce construction-related vibration. Specifically, use of a static roller would generate vibration levels of approximately 0.05 in/sec PPV and 82 VdB at a distance of 25 feet (McIver

2012). Grading and earthwork equipment that is limited to 100 horsepower or less would generate 0.006 in/sec PPV and 65 VdB within 15 feet of sensitive receptors. Therefore, Mitigation Measure NOI-3 would reduce vibration levels to below the threshold of significance for architectural damage. However, if uncontrolled, the use of a static roller within 25 feet of a sensitive receptor could still exceed the human annoyance threshold of 72 VdB. Implementation of Mitigation Measure NOI-1 would designate a complaint coordinator who would investigate complaints and take appropriate corrective action to minimize construction vibration disturbances, in the event nearby receptors experience annoyance related to construction vibration. Nonetheless, vibration levels could still exceed the human annoyance threshold of 72 VdB and impacts to human annoyance would be significant and unavoidable.

Operational vibration impacts would be less than significant, and mitigation would not be required.

Threshold 3:	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Impact NOI-3 THE PROJECT SITE IS NOT LOCATED IN THE LONG BEACH MUNICIPAL AIRPORT LAND USE COMPATIBILITY ZONE OR INFLUENCE AREA, NOR ARE THERE ANY PRIVATE AIRSTRIPS WITHIN TWO MILES OF THE PROJECT SITE. THEREFORE, THE PROJECT WOULD NOT EXPOSE RESIDENTS OR WORKERS TO EXCESSIVE NOISE LEVELS RELATED TO AIRPORTS, AND NO IMPACT WOULD OCCUR.

The proposed project would involve the phased demolition of existing structures on the OSP Specific Plan Site and the construction of up to 1,553 multi-family residential units, 85,000 sf of services, amenities and administration uses, and 45,000 sf of local-serving commercial/retail uses. The 327 Harbor Site would be developed with 47 residential units to serve as replacement housing for current Rancho San Pedro residents during construction on the OSP Specific Plan Site. Two project development scenarios are proposed (see Section 2, *Project Description*) that would involve phasing construction on the OSP Specific Plan Site in different ways. Under Scenario A, the densest development would be located in Phases 2 and 3, whereas under Scenario B, development would be densest in Phases 1 and 2. Under both Scenarios, the footprint of development would be identical, construction and grading activities would be the same, and the same types and amounts of land uses would be developed as a whole. Therefore, this analysis applies to both Scenario A and Scenario B.

The nearest airport to the project site is the Long Beach Municipal Airport, approximately nine miles to the southeast. The project site is not located in the Long Beach Municipal Airport compatibility zone or influence area (Los Angeles County ALUC 2003). There are no private airstrips within two miles of the project site. Although the project site may be subject to occasional aircraft overflight noise, such occurrences would be intermittent and temporary. Therefore, the project would not expose people residing or working in the project area to excessive noise levels, and no impact would occur.

Mitigation Measures

No project-level impact related to airport noise would occur. Therefore, mitigation is not required.

Significance After Mitigation

No project-level impacts related to airport noise would occur, and no mitigation is required.

4.9.4 Cumulative Impacts

As identified in Table 3-1, *Cumulative Project List,* in Section 3.4, *Cumulative Development*, there are 12 currently planned and pending projects within a 0.5-mile radius of the project site. The potential for cumulative noise impacts to occur is specific to the distance between each of these projects and their stationary noise sources, as well as the cumulative traffic that these projects would add to the surrounding roadway network.

a. Construction Noise

On-Site Construction Noise

As indicated in Section 3.4, *Cumulative Development*, 12 cumulative projects have been identified in the vicinity of the project site. Noise from construction of development projects is typically localized and has the potential to affect noise-sensitive uses within 500 feet from the construction site, based on the L.A. CEQA Thresholds Guide screening criteria. Thus, noise from construction activities for two projects within 1,000 feet of each other can contribute to a cumulative noise impact for receptors located midway between the two construction sites. Of the 12 cumulative projects, seven are located more than 1,000 feet from the proposed project site and are separated from the project site by intervening building structures, and would therefore not contribute to the cumulative construction noise impacts. One of the cumulative projects located within 1,000 feet of the proposed project site, Cumulative Project No. 11 (located adjacent to the 327 Harbor Site), is currently under construction, which is anticipated to be completed in mid-2023, before construction of the proposed project would commence (Sharp 2022). The four remaining cumulative projects within 1,000 feet of the proposed project site could potentially be constructed concurrently with the proposed project. Therefore, the following four cumulative projects within 1,000 feet of the proposed project site were evaluated to determine if potential cumulative construction noise impacts could be significant.

- Cumulative Project No. 4 is located at 511 South Harbor Boulevard, approximately 400 feet south of the OSP Specific Plan Site. There are noise-sensitive receptors located between the proposed project site and the Cumulative Project No. 4 site, as represented by Sensitive Receptor C12 modeled for the proposed project. As indicated in Table 4.9-8 through Table 4.9-10, the estimated noise from proposed project construction activities at Sensitive Receptor C12 would increase noise levels by up to 15 dBA and would exceed significance thresholds. As such, if construction of the proposed project were to overlap with Cumulative Project No. 4, cumulative construction noise at noise-sensitive receptors could be significant, and the proposed project's contribution would be cumulatively considerable.
- Cumulative Project No. 5 is located at 111 North Harbor Boulevard, approximately 50 feet east of the OSP Specific Plan Site. There are noise-sensitive receptors located between the proposed project site and the Cumulative Project No. 5 site, as represented by Sensitive Receptor C04. As indicated in Table 4.9-8 through Table 4.9-10, the estimated noise from proposed project construction activities at Sensitive Receptor C04 would increase ambient noise levels by up to 12 dBA and would exceed significance thresholds. As such, if construction of the proposed project were to overlap with Cumulative Project No. 5, cumulative construction noise at noise-sensitive receptors could be significant, and the proposed project's contribution would be cumulatively considerable.
- Cumulative Project No. 6 is located at 505 South Centre Street, approximately 780 feet southwest of the OSP Specific Plan Site. There are noise-sensitive receptors located between the proposed project site and the Cumulative Project No. 5 site, as represented by Sensitive Receptor C11. As

indicated in Table 4.9-8 through Table 4.9-10, the estimated noise from proposed project construction activities at Sensitive Receptor C11 would not exceed the significance threshold. Additionally, Cumulative Project No. 6 is shielded from Sensitive Receptor C11 by several buildings and construction noise from Cumulative Project No. 6 at Sensitive Receptor C11 would be below the significance threshold. Nonetheless, if construction of the proposed project were to overlap with Cumulative Project No. 6, cumulative construction noise at noise-sensitive receptors could be significant, and the proposed project's contribution would be cumulatively considerable.

- Cumulative Project No. 7 is located at 222 West 6th Street, approximately 840 feet south of the OSP Specific Plan Site. There are noise-sensitive receptors located between the proposed project site and the Cumulative Project No. 5 site, as represented by Sensitive Receptor C11. As indicated in Table 4.9-8 through Table 4.9-10, the estimated noise from proposed project construction activities at Sensitive Receptor C11 would not exceed the significance threshold. Additionally, Cumulative Project No. 7 is shielded from Sensitive Receptor C11 by buildings north and south of West 5th Street and construction noise from Cumulative Project No. 7 to Sensitive Receptor C11 would be below the significance threshold. Therefore, if construction of the proposed project were to overlap with Cumulative Project No. 7, cumulative construction noise at noise-sensitive receptors could be significant. However, the proposed project's contribution would not be cumulatively considerable.

In summary, potentially significant construction noise impacts could occur if the proposed project is under construction during the construction periods of Cumulative Project Nos. 4, 5, 6, and/or 7. Construction-related noise levels from the cumulative projects would be intermittent and temporary, and it is anticipated that the cumulative projects would comply with the construction hour regulations and other applicable provisions set forth in the City's Municipal Code. Noise associated with cumulative construction activities would be reduced to the degree reasonable and technically feasible through proposed mitigation measures for each individual cumulative project and compliance with the locally adopted and enforced noise ordinance. However, although the proposed project would require implementation of Mitigation Measure NOI-1, which would minimize the proposed project's construction noise impacts, proposed project construction noise would still remain significant after mitigation. Therefore, this analysis conservatively assumes cumulative noise impacts from on-site construction would be potentially significant and unavoidable.

Off-Site Construction Noise

In addition to the cumulative impacts of on-site construction activities, off-site construction haul trucks would have a potential to result in cumulative impacts if the trucks associated with the cumulative projects and the proposed project were to utilize the same haul routes. As discussed in Section 2, *Project Description*, the proposed project's construction hauling would primarily be directed along 1st Street, 3rd Street, and Harbor Boulevard to minimize potential traffic impacts to existing residents. A Construction Management Plan, including a traffic control plan and schedule, would be implemented during project construction (refer to Project Design Feature T-1 in Section 4.13, *Transportation*), and the proposed project's haul route would require approval from the Los Angeles Department of Building and Safety prior to project construction. As discussed above under Impact NOI-1 (see Table 4.9-12), proposed project-related noise increases would be less than 1 dBA, which is below the 5-dBA significance threshold for construction noise. Although construction traffic related to the proposed project could potentially occur at the same time as one or more of the cumulative projects, the cumulative projects would also be required to minimize construction-related traffic noise by implementing project-specific Construction Management Plans and utilizing City-

approved haul routes for each cumulative project. Nonetheless, if all cumulative projects were to undergo construction at the same time as the proposed project, cumulative noise impacts associated with off-site construction traffic would be potentially significant and unavoidable. However, the proposed project's contribution to such impacts would not be cumulatively considerable.

b. Operational Stationary Noise

The project would introduce new stationary on-site noise sources to the ambient noise environment in the vicinity of the project area, including new mechanical ventilation equipment. These sources may combine with other nearby cumulative projects to result in higher noise levels. However, operational noise from these sources is localized and rapidly attenuates within an urbanized setting due to the effects of intervening structures and topography that block the line of sight and due to other noise sources closer to receptors that obscure project-related noise. Implementation of City municipal code noise standards would ensure that noise from new stationary sources as part of the cumulative projects would be within acceptable levels. Therefore, the cumulative impact related to operational stationary noise would be less than significant.

The project would also introduce new stationary recreational noise sources to the ambient noise environment in the vicinity of the project area. Stationary recreational noise is localized and would only occur at locations that facilitate recreational activities such as the youth sports field and the potential skate park, bandshell, and/or dog park. Implementation of Mitigation Measure NOI-2 would require a PA Design Plan and additional analysis of noise generated at the potential skate park, bandshell, and/or dog park when project-level details are available. However, since future project-level details for the potential skate park, dog park, or other recreational noise sources are not available, it may not be possible to mitigate noise from amplified events such as at the sports field and/or bandshell and impacts would be significant and unavoidable. Therefore, stationary recreational noise impacts would be cumulatively considerable.

As shown in Table 4.9-13, traffic noise increases from the Future 2037 Build scenario would not contribute to noise level increases that exceed impact criteria. The Future 2037 Build scenario includes cumulative conditions (Fehr & Peers 2023). Therefore, cumulative traffic noise impacts would be less than significant.

c. Groundborne Vibration and Noise

Although there could be other cumulative projects simultaneously under construction near the project site, the potential for building architectural damage impacts from construction vibration is within relatively close distances (e.g., within approximately 25 feet for a vibratory roller and 15 feet for grading and earthwork equipment). The closest Cumulative Project to the project site is Cumulative Project No. 5 located at 111 North Harbor Boulevard, which is approximately 50 feet east of the OSP Specific Plan Site. Therefore, based on distance attenuation, potential building architectural damage from the concurrent construction activities on the project site and cumulative project sites would be less than significant. In terms of potential construction vibration annoyance, it is assumed that earthmoving equipment such as a dozer could be operated from the center of the Cumulative Project No. 5 site, which would be approximately 100 feet from the nearest off-site buildings. At this distance, vibration levels from construction of Cumulative Project No. 5 would be approximately 69 VdB, which would not exceed the threshold of 72 VdB for potential human annoyance. In the unlikely event that utility or road work as part of the proposed project occurred simultaneously as construction of Cumulative Project No. 5, vibration levels would still be up to 82 VdB with implementation of Mitigation Measure NOI-3, which would require the use of a static roller.

Since construction vibration from Cumulative Project No. 5 would be more than 10 VdB below the vibration level from the project, the increase from the combination of both sources would be negligible and the combined level is predicted to remain at 82 VdB. Therefore, the proposed project would not contribute to a cumulative construction vibration impact, and cumulative impacts would be less than significant.

The proposed project and cumulative projects do not include operational sources of groundborne vibration or noise. Considering the types of development planned in the project area and distance between each of the related projects and the proposed project, cumulative operational impacts related to groundborne vibration and noise would be less than significant. Therefore, the operation of the proposed project combined with cumulative development would not result in significant cumulative impacts related to groundborne vibration or noise.

d. Airport Noise

Similar to the proposed project, the cumulative projects are located outside of the Long Beach Municipal Airport land use compatibility zone or influence area and are not within the vicinity of a private airstrip. Therefore, the proposed project and other cumulative development would not result in cumulative impacts related to airport noise and there would be no cumulative impact related to being located near an airport.